Virology

Volume 190
1992

EDITORS

W. K. Joklik, EDITOR-IN-CHIEF M. J. Buchmeier R. Haselkorn M. M.-C. Lai B. Moss
J. R. Nevins P. Palukaitis J. K. Rose B. Sugden M. D. Summers P. K. Vogt

ASSOCIATE EDITORS

P. Ahlquist
R. Ahmed
G. Air
A. K. Banerjee
C. Basilico
T. Ben-Porat Kaplan
K. I. Berns
G. W. Blissard
T. J. Braciale
P. Brown
G. Bruening
E. Carstens
B. J. Carter
L. T. Chow
J. M. Coffin
A. M. Colberg-Poley
R. W. Compans
R. C. Condit
J. A. Cooper
S. Dales
J. M. Dalrymple
D. DiMaio
P. C. Doherty
W. G. Dougherty
J. J. Dunn
E. Ehrenfeld
J. H. Elder
S. Emerson
L. W. Enquist
M. Feiss
B. N. Fields
J. B. Flanegan
S. J. Flint
W. R. Folk
D. A. Galloway
E. P. Geiduschek
W. Gibson
R. M. Goodman
R. Goorha
D. E. Griffin
B. H. Hahn
E. Harlow
M. Hayman
P. Hearing
M. S. Horwitz
M. M. Howe
S. H. Hughes
R. Hull
E. Hunter
T. Hunter
A. O. Jackson
J. E. Johnson
R. E. Johnston
J. D. Keene
E. Kieff
D. F. Klessig
D. M. Knipe
H.-J. Kung
L. A. Laimins
R. A. Lamb
J. S. Lipsick
D. M. Livingston
G. P. Lomonossoff
P. A. Luciw
R. B. Luftig
J. Majors
P. L. Marion
W. Mason
G. McFadden
J. E. Mertz
E. S. Mocarski, Jr.
P. Model
E. Moran
T. J. Morris
T. G. Morrison
R. W. Moyer
S. A. Moyer
F. A. Murphy
R. Nusse
D. J. O'Callaghan
P. Offit
R. A. Owens
P. Palese
P. Palukaitis
E. Paoletti
J. T. Parsons
C. D. Pauza
G. N. Pavlakis
M. E. Peeples
S. Perlman
S. Pestka
R. F. Pettersson
D. J. Pickup
P. M. Pitha-Rowe
R. D. Possee
L. E. Post
M. L. Privalsky
V. Racaniello
R. F. Ramig
L. Ratner
H. R. Revel
C. M. Rice
H. L. Robinson
G. F. Rohrmann
B. Roizman
C. Rosen
L. B. Rothman-Denes
C. E. Samuel
P. A. Schaffer
B. S. Schaffhausen
R. Schlegel
C. Schmaljohn
J. E. Schoelz
M. Schubert
C. Seeger
B. M. Sefton
B. L. Semler
K. V. Shah
P. R. Shank
J. G. Shaw
J. Sodroski
D. H. Spector
J. Stanley
M. F. Stinski
V. Stollar
S. E. Straus
J. H. Strauss
D. F. Summers
J. W. Summers
M. M. Susskind
R. I. Swanstrom
R. H. Symons
P. Tattersall
M. J. Tevethia
S. S. Tevethia
D. A. Thorley-Lawson
C. P. Van Beveren
J. L. Van Etten
I. M. Verma
L. E. Volkman
E. K. Wagner
R. L. Ward
R. G. Webster
W. S. M. Wold
F. Wong-Staal

ACADEMIC PRESS, INC.
Harcourt Brace Jovanovich, Publishers
San Diego New York Boston
London Sydney Tokyo Toronto

Copyright © 1992 by Academic Press, Inc.

All Rights Reserved

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

The appearance of the code at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients. This consent is given on the condition, however, that the copier pay the stated per copy fee through the Copyright Clearance Center, Inc. (27 Congress Street, Salem, Massachusetts 01970), for copying beyond that permitted by Sections 107 or 108 of the U. S. Copyright Law. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Copy fees for pre-1992 articles are as shown on the article title pages; if no fee code appears on the title page, the copy fee is the same as for current articles.

0042-6822/92 $5.00

MADE IN THE UNITED STATES OF AMERICA

This journal is printed on acid-free paper.

Contents of Volume 190

Number 1, September 1992

PCR Amplification of HIV-1 Proteinase Sequences Directly from Lab Isolates Allows Determination of Five Conserved Domains	Gregory Fontenot, Kenneth Johnston, J. Craig Cohen, William R. Gallaher, James Robinson, and Ronald B. Luftig	1
Maturation of Influenza A Virus Hemagglutinin—Estimates of the pH Encountered during Transport and Its Regulation by the M2 Protein	S. Grambas and A. J. Hay	11
Cell-Free Transmission of Vif Mutants of HIV-1	Liju Fan and Keith Peden	19
Analysis of Cauliflower Mosaic Virus RNAs in Brassica Species Showing a Range of Susceptibility to Infection	Hélène Sanfaçon and Andrew Wieczorek	30
Modulation of the Human Papillomavirus Type 16 Induced Transformation and Transcription by Deletion of Loci on the Short Arm of Human Chromosome 11 Can Be Mimicked by SV40 Small t	Paul H. M. Smits, Anthony de Ronde, Henk L. Smits, René P. Minnaar, Jan van der Noordaa, and Jan ter Schegget	40
The Immunity-Conferring Plasmid pϕHL from the *Halobacterium salinarium* Phage ϕH: Nucleotide Sequence and Transcription	Felix Gropp, Bernd Grampp, Pelle Stolt, Peter Palm, and Wolfram Zillig	45
***cis*-Active Sequences near the 5′-Termini of Beet Necrotic Yellow Vein Virus RNAs 3 and 4**	D. Gilmer, K. Richards, G. Jonard, and H. Guilley	55
Characterization of an Oligomerization Domain and RNA-Binding Properties on Rotavirus Nonstructural Protein NS34	Nora M. Mattion, Jean Cohen, Carlos Aponte, and Mary K. Estes	68
Involvement of FOS and JUN in the Activation of Visna Virus Gene Expression in Macrophages through an AP-1 Site in the Viral LTR	Ding S. Shih, Lucy M. Carruth, Mark Anderson, and Janice E. Clements	84
Genetic Evolution and Tropism of Transmissible Gastroenteritis Coronaviruses	Carlos M. Sánchez, Fátima Gebauer, Carlos Suñé, Ana Mendez, Joaquín Dopazo, and Luis Enjuanes	92
Expression of the Epstein–Barr Virus Latent Membrane Protein (LMP) in Insect Cells and Detection of Antibodies in Human Sera against This Protein	Hai-Feng Chen, Sarah Kevan-Jah, Karl-Otto Suentzenich, Friedrich A. Grässer, and Nikolous Mueller-Lantzsch	106
Trans-Activation of H-1 Parvovirus P38 Promoter Is Correlated with Increased Binding of Cellular Protein(s) to the Trans-Activation Responsive Element (tar)	Mi-Li Gu and Solon L. Rhode	116
Distinctive Pattern of Infection and Replication of HIV1 Strains in Blood-Derived Macrophages	Helena Schmidtmayerova, Christine Bolmont, Stephen Baghdiguian, Ivan Hirsch, and Jean-Claude Chermann	124
Amino Acid Residues of the Human Immunodeficiency Virus Type I gp120 Critical for the Binding of Rat and Human Neutralizing Antibodies That Block the gp120-sCD4 Interaction	J. A. McKeating, M. Thali, C. Furman, S. Karwowska, M. K. Gorny, J. Cordell, S. Zolla-Pazner, J. Sodroski, and R. A. Weiss	134

Identification of Equine Herpesvirus 4 Glycoprotein G: A Type-Specific, Secreted Glycoprotein	Brendan S. Crabb, Hadya S. Nagesha, and Michael J. Studdert	143
Selection against Large T-Antigen Expression in Cells Transformed by Lymphotropic Papova Virus	Volker von Hoyningen-Huene, Marion Kurth, and Wolfgang Deppert	155
EBV Strain Variation: Geographical Distribution and Relation to Disease State	Mohamed Abdel-Hamid, Jian-Jing Chen, Niel Constantine, Mohamed Massoud, and Nancy Raab-Traub	168
Inhibition of Replication of HIV-1 by Retroviral Vectors Expressing *tat*–Antisense and Anti-*tat* Ribozyme RNA	K. M. Steve Lo, Maria Angela Biasolo, Ghassan Dehni, Giorgio Palú, and William A. Haseltine	176
Herpes Simplex Virus Type I Gene UL13 Encodes a Phosphoprotein That Is a Component of the Virion	Hilary A. Overton, David J. McMillan, Linda S. Klavinskis, Louise Hope, Alison J. Ritchie, and Philippe Wong-kai-in	184
Viral Spliced RNA Are Produced, Encapsidated and Reverse Transcribed during *in Vivo* Woodchuck Hepatitis Virus Infection	Olivier Hantz, Isabelle Baginski, Isabelle Fourel, Isabelle Chemin, and Christian Trepo	193
Nucleotide Sequence and Transcriptional Analysis of the p80 Gene of *Autographa californica* Nuclear Polyhedrosis Virus: A Homologue of the *Orgyia pseudotsugata* Nuclear Polyhedrosis Virus Capsid-Associated Gene	Albert Lu and Eric B. Carstens	201
Interferon-Alpha-Induced Gene Expression: Evidence for a Selective Effect of Ouabain on Activation of the ISGF3 Transcription Complex	Yoichi Nakagawa, Emanuel F. Petricoin III, Hiroaki Akai, Philip M. Grimley, Bonnie Rupp, and Andrew C. Larner	210
Characterization of the Large Tegument Protein (ICP1/2) of Herpes Simplex Virus Type 1	David S. McNabb and Richard J. Courtney	221
Baculovirus-Expressed Glycoprotein G of Herpes Simplex Virus Type I Partially Protects Vaccinated Mice against Lethal HSV-1 Challenge	Homayon Ghiasi, Ravi Kaiwar, Anthony B. Nesburn, and Steven L. Wechsler	233
Molecular Analysis of Rice Dwarf Phytoreovirus Segment S1: Interviral Homology of the Putative RNA-Dependent RNA Polymerase between Plant- and Animal-Infecting Reoviruses	Nobuhiro Suzuki, Masako Tanimura, Yuzuko Watanabe, Tomonobu Kusano, Yoshichika Kitagawa, Narushi Suda, Hiroshi Kudo, Ichiro Uyeda, and Eishiro Shikata	240
Transcription Mapping of Mouse Adenovirus Type I Early Region 4	Susan C. Kring, Amy Oberhauser Ball, and Katherine R. Spindler	248
Construction of a US3 *lacZ* Insertion Mutant of Herpes Simplex Virus Type 2 and Characterization of Its Phenotype *in Vitro* and *in Vivo*	Yukihiro Nishiyama, Yoshinari Yamada, Ryutaro Kurachi, and Tohru Daikoku	256
Prevention of the Spread of HIV-1 Infection with Nonnucleoside Reverse Transcriptase Inhibitors	M. B. Vasudevachari, C. Battista, H. C. Lane, M. C. Psallidopoulos, B. Zhao, J. Cook, J. R. Palmer, D. L. Romero, W. G. Tarpley, and N. P. Salzman	269
Location and Character of the Cellular Enzyme That Cleaves the Hemagglutinin of a Virulent Avian Influenza Virus	John A. Walker, Takemasa Sakaguchi, Yoshiko Matsuda, Tetsuya Yoshida, and Yoshihiro Kawaoka	278

In Vivo Transcriptional Analysis of Three Baculovirus Genes: Evidence of Homology between Viral and Host Transcripts — Daphne Q.-D. Pham and Natarajan Sivasubramanian 288

Mutational Analysis of the Tobacco Etch Potyviral 35-kDa Proteinase: Identification of Essential Residues and Requirements for Autoproteolysis — Jeanmarie Verchot, Kerri L. Herndon, and James C. Carrington 298

The Equine Herpesvirus Type 1 (EHV-1) Homolog of Herpes Simplex Virus Type 1 US9 and the Nature of a Major Deletion within the Unique Short Segment of the EHV-1 KyA Strain Genome — C. Clay Flowers and Dennis J. O'Callaghan ... 307

Modulation of the Cellular Phenotype by Integrated Adeno-Associated Virus — Ernest Winocour, Leopold Puzis, Sara Etkin, Tamar Koch, Bernard Danovitch, Ella Mendelson, Eitan Shaulian, Shulamit Karby, and Sara Lavi 316

Disulfide Bonds Are Essential for the Stability of the Sindbis Virus Envelope — Richard P. Anthony, Angel M. Paredes, and Dennis T. Brown 330

Molecular and Structural Basis of Hemagglutination in Mengovirus — Linda M. Mann, Kevin Anderson, Ming Luo, and Clifford W. Bond 337

Characterization of an Internal Element in Turnip Crinkle Virus RNA Involved in Both Coat Protein Binding and Replication — Ning Wei, David L. Hacker, and Thomas J. Morris 346

Mutation of the HANA Protein of Sendai Virus by Passage in Eggs — Masae Itoh, Xiao-Li Wang, Yasuo Suzuki, and Morio Homma 356

In Vitro Excision and Replication of 5′ Telomeres of Minute Virus of Mice DNA from Cloned Palindromic Concatemer Junctions — Susan F. Cotmore, Jurg P. F. Nuesch, and Peter Tattersall 365

Structural, Functional, and Immunological Characterization of Bovine Herpesvirus-1 Glycoprotein gI Expressed by Recombinant Baculovirus — S. van Drunen Littel-van den Hurk, M. D. Parker, D. R. Fitzpatrick, J. V. van den Hurk, M. Campos, L. A. Babiuk, and T. Zamb 378

Expression of SV40 Receptors on Apical Surfaces of Polarized Epithelial Cells — Sukla Basak, Henrietta Turner, and Richard W. Compans 393

Regulation of Caulimovirus Gene Expression and the Involvement of _cis_-Acting Elements on Both Viral Transcripts — Herman B. Scholthof, Fang C. Wu, Siddarame Gowda, and Robert J. Shepherd 403

Hepatitis Delta Antigen Expressed by Recombinant Baculoviruses: Comparison of Biochemical Properties and Post-translational Modifications between the Large and Small Forms — Soon B. Hwang, Cha-ze Lee, and Michael M. C. Lai 413

Further Analyses of the Orthopoxviruses Volepox Virus and Raccoon Poxvirus — Janice C. Knight, Cynthia S. Goldsmith, Azaibi Tamin, Russell L. Regnery, David C. Regnery, and Joseph J. Esposito 423

Short Communications

Sequences of the Raccoon Poxvirus Hemagglutinin Protein — Kathleen F. Cavallaro and Joseph J. Esposito .. 434

Mutations in the Central Polypurine Tract of HIV-1 Result in Delayed Replication	Olav Hungnes, Enok Tjøtta, and Bjørn Grinde	440
The Complete Nucleotide Sequence of a Feline Calicivirus	M. J. Carter, I. D. Milton, J. Meanger, M. Bennett, R. M. Gaskell, and P. C. Turner	443
On the Association of Human β2 Microglobulin with Cell Culture-Grown Human Cytomegalovirus (HCMV)	Yasuo Yamashita, Kaoru Shimokata, and Yukihiro Nishiyama	449
A Highly Attenuated Host Range-Restricted Vaccinia Virus Strain, NYVAC, Encoding the prM, E, and NS1 Genes of Japanese Encephalitis Virus Prevents JEV Viremia in Swine	Eiji Konishi, Steven Pincus, Enzo Paoletti, William W. Laegreid, Robert E. Shope, and Peter W. Mason	454
Antibody Response to Human Papovavirus JC (JCV) and Simian Virus 40 (SV40) T Antigens in SV40 T Antigen-Transgenic Mice	Satvir S. Tevethia, Melanie Epler, Ingo Georgoff, Angie Teresky, Marty Marlow, and Arnold J. Levine	459
Sequences within the Feline Immunodeficiency Virus Long Terminal Repeat That Regulate Gene Expression and Respond to Activation by Feline Herpesvirus Type 1	Yasushi Kawaguchi, Junzo Norimine, Takayuki Miyazawa, Chieko Kai, and Takeshi Mikami	465
Constant and Variable Regions of Measles Virus Proteins Encoded by the Nucleocapsid and Phosphoprotein Genes Derived from Lytic and Persistent Viruses	Knut Baczko, Iancu Pardowitz, Bert K. Rima, and Volker ter Meulen	469
SV40 Small t Deletion Mutants Preferentially Transform Mononuclear Phagocytes and B Lymphocytes *in Vivo*	Claudia Cicala, Franca Pompetti, Phuong Nguyen, Kathleen Dixon, Arthur S. Levine, and Michele Carbone	475
Incomplete Splicing of Simian Virus 40 Large T Antigen Transcripts in a Transformed Mouse Cell Line	P. Kavin Kennady and Veena K. Parnaik	480
The Transmembrane Domain of Influenza A M2 Protein Forms Amantadine-Sensitive Proton Channels in Planar Lipid Bilayers	K. C. Duff and R. H. Ashley	485
Phenotypic and Genetic Polymorphisms among Human Herpesvirus-6 Isolates from North American Infants	S. Dewhurst, B. Chandran, K. McIntyre, K. Schnabel, and C. B. Hall	490
Further Characterization of the ts453 Mutant of Mammalian Orthoreovirus Serotype 3 and Nucleotide Sequence of the Mutated S4 Gene	Carole Danis, Simon Garzon, and Guy Lemay	494
Conserved Cysteines of the Hepatitis B Virus Core Protein Are Not Required for Assembly of Replication-Competent Core Particles Nor for Their Envelopment	Michael Nassal	499
A Symptom Variant of Beet Curly Top Geminivirus Produced by Mutation of Open Reading Frame C4	John Stanley and Jonathan R. Latham	506
Release of 22-kDa Protein Derived from the Amino-Terminal Domain of the 49-kDa Nla of Turnip Mosaic Potyvirus in *Escherichia coli*	Jean-François Laliberté, Olivier Nicolas, Henriette Chatel, Claude Lazure, and Rolf Morosoli	510
Nucleotide Sequence of the Envelope Glycoprotein of Negishi Virus Shows Very Close Homology to Louping III Virus	K. Venugopal, A. Buckley, H. W. Reid, and E. A. Gould	515

Introduction of Foreign DNA into the Vaccinia Virus Genome by *in Vitro* Ligation: Recombination-Independent Selectable Cloning Vectors — Michael Merchlinsky and Bernard Moss 522

Herpesvirus Saimiri Has a Gene Specifying a Homologue of the Cellular Membrane Glycoprotein CD59 — J.-C. Albrecht, J. Nicholas, K. R. Cameron, C. Newman, B. Fleckenstein, and R. W. Honess 527

The Correct Sequence of the Porcine Group C/Cowden Rotavirus Major Inner Capsid Protein Shows Close Homology with Human Isolates from Brazil and the U.K. — S. J. Cooke, I. N. Clarke, R. B. Freitas, Y. B. Gabbay, and P. R. Lambden 531

The Herpes Simplex Virus Type 1 Immediate–Early Polypeptide ICP4 Is Required for Expression of Globin Genes Located in the Viral Genome — James R. Smiley and Joanne Duncan 538

Nucleotide Sequence of Gene 5 Encoding the Inner Capsid Protein (VP6) of Bovine Group C Rotavirus: Comparison with Corresponding Genes of Group C, A, and B Rotaviruses — Baoming Jiang, Hiroshi Tsunemitsu, Jon R. Gentsch, Roger I. Glass, Kim Y. Green, Yuan Qian, and Linda J. Saif 542

HPV-1 L1 Protein Expressed in cos Cells Displays Conformational Epitopes Found on Intact Virions — Shin-Je Ghim, A. Bennett Jenson, and Richard Schlegel 548

Sequence Analysis and Editing of the Phosphoprotein (P) Gene of Rinderpest Virus — Miles Yamanaka, Beverly Dale, Tracey Crisp, Barbara Cordell, Marvin Grubman, and Tilahun Yilma 553

Evidence That a Cytoplasmically Located Version of a *v-erbB*-Encoded Protein Can Transform Both Fibroblasts and Erythroblasts — Eunhee Bae Lee, Susanne Meyer, and Michael J. Hayman 557

Molecular Cloning of a Novel Human Papillomavirus (Type 60) from a Plantar Cyst with Characteristic Pathological Changes — Toshihiko Matsukura, Takuya Iwasaki, and Makoto Kawashima 561

Announcement 565

Author Index for Volume 190, Number 1 566

Number 2, October 1992

Analysis of the Amino Terminal Presequence of the Feline Immunodeficiency Virus Glycoprotein: Effect of Deletions on the Intracellular Transport of gp95 — E. B. Stephens, E. J. Butfiloski, and E. Monck 569

The Replication of Cymbidium Ringspot Tombusvirus Defective Interfering-Satellite RNA Hybrid Molecules — József Burgyán, Tamás Dalmay, Luisa Rubino, and Marcello Russo 579

Human Papillomavirus Type 13 and Pygmy Chimpanzee Papillomavirus Type 1: Comparison of the Genome Organizations — Marc Van Ranst, Akira Fuse, Pierre Fiten, Erik Beuken, Herbert Pfister, Robert D. Burk, and Ghislain Opdenakker 587

Molecular Analysis of Simian Varicella Virus DNA — P. Clarke, S. D. Rabkin, M. V. Inman, R. Mahalingam, R. Cohrs, M. Wellish, and D. H. Gilden 597

Dugbe Nairovirus M RNA: Nucleotide Sequence and Coding Strategy — Anthony C. Marriott, Ali A. El-Ghorr, and Patricia A. Nuttall 606

Canine Distemper Virus Increases Procoagulant Activity of Macrophages — Martin Brügger, Thomas W. Jungi, Andreas Zurbriggen, and Marc Vandevelde 616

Construction, Characterization, and Utilization of Cell Lines Which Inducibly Express the Adenovirus DNA-Binding Protein — Douglas E. Brough, Vaughn Cleghon, and Daniel F. Klessig 624

Bacteriophage ϕ6 Envelope Elucidated by Chemical Cross-Linking, Immunodetection, and Cryoelectron Microscopy — John M. Kenney, Jarkko Hantula, Stephen D. Fuller, Leonard Mindich, Päivi M. Ojala, and Dennis H. Bamford 635

Stimulation of Adenovirus Early Gene Expression by Phorbol Ester: Its Possible Mechanism — Amin Mirza 645

Genetic Relationships between Bovine Herpesvirus 4 and the Gammaherpesviruses Epstein–Barr Virus and Herpesvirus Saimiri — Michel Bublot, Patrick Lomonte, Anne-Sophie Lequarre, Jens-Christian Albrecht, John Nicholas, Bernhard Fleckenstein, Paul-Pierre Pastoret, and Etienne Thiry 654

Bovine Herpesvirus 1 as a Live Virus Vector for Expression of Foreign Genes — Leonard J. Bello, J. Charles Whitbeck, and William C. Lawrence 666

Ugandan HIV-1 V3 Loop Sequences Closely Related to the U.S./European Consensus — Jan Albert, Lena Franzén, Marianne Jansson, Gabriella Scarlatti, Peter K. Kataaha, E. Katabira, F. Mubiro, Maria Rydåker, Paolo Rossi, Ulf Pettersson, and Hans Wigzell .. 674

Noninfectious L-Particles Supply Functions Which Can Facilitate Infection by HSV-1 — John McLauchlan, Clare Addison, Marianne C. Craigie, and Frazer J. Rixon 682

Sequencing and 5′- and 3′-end Transcript Mapping of the Gene Encoding the Small Subunit of Ribonucleotide Reductase from Bovine Herpesvirus Type-1 — Claire Simard, Nathalie Bastien, and Michel Trudel 689

Genetic Analysis of the Herpes Simplex Virus Type 1 UL9 Gene: Isolation of a LacZ Insertion Mutant and Expression in Eukaryotic Cells — Ajay K. Malik, Ricardo Martinez, Lavinia Muncy, Ellen P. Carmichael, and Sandra K. Weller 702

Interaction of the Human Polyomavirus, JCV, with Human B-Lymphocytes — Walter J. Atwood, Kei Amemiya, Renee Traub, Jurgen Harms, and Eugene O. Major 716

Independent Association of Antibodies against Human Papillomavirus Type 16 E1/E4 and E7 Proteins with Cervical Cancer — Tadahito Kanda, Takashi Onda, Soichi Zanma, Toshiharu Yasugi, Akemi Furuno, Sumie Watanabe, Takashi Kawana, Motoyasu Sugase, Kuniaki Ueda, Takahiko Sonoda, Saburo Suzuki, Takenobu Yamashiro, Hiroyuki Yoshikawa, and Kunito Yoshiike 724

Expression, Purification, and Functional Characterization of Adenovirus 5 and 12 E1A Proteins Produced in Insect Cells — Daniel S. Peeper, Alt Zantema, Steven F. Dowdy, and Alex J. van der Eb 733

Processing of Linear Longer-Than-Unit-Length Potato Spindle Tuber Viroid RNAs into Infectious Monomeric Circular Molecules by a G-Specific Endoribonuclease — Martin Tabler, Sergia Tzortzakaki, and Mina Tsagris 746

Proteolytic Processing of the Cardioviral P2 Region: Primary 2A/2B Cleavage in Clone-Derived Precursors — Ann C. Palmenberg, Griffith D. Parks, David J. Hall, Richard H. Ingraham, Thomas W. Seng, and Peter V. Pallai 754

Epitope Mapping of the gp53 Envelope Protein of Bovine Viral Diarrhea Virus — D. J. Paton, J. P. Lowings, and A. D. T. Barrett 763

Three Regions of Cauliflower Mosaic Virus Strain W260 Are Involved in Systemic Infection of Solanaceous Hosts — Shirley G. Qiu and James E. Schoelz 773

A Synthetic Early Promoter from a Baculovirus: Roles of the TATA Box and Conserved Start Site CAGT Sequence in Basal Levels of Transcription — Gary W. Blissard, Philip H. Kogan, Rosalind Wei, and George F. Rohrmann 783

Cell Surface Ligands for Rotavirus: Mouse Intestinal Glycolipids and Synthetic Carbohydrate Analogs — Cheryl A. Srnka, Michael Tiemeyer, James H. Gilbert, Margaret Moreland, Hans Schweingruber, Brock W. de Lappe, Paul G. James, Tracey Gant, Rodney E. Willoughby, Robert H. Yolken, Mina A. Nashed, Saeed A. Abbas, and Roger A. Laine 794

Sequence and Analysis of the Capsid Protein of *Nudaurelia capensis* ω Virus, an Insect Virus with $T = 4$ Icosahedral Symmetry — Deepak K. Agrawal and John E. Johnson 806

A Cellular Promoter-Based Expression Cassette for Generating Recombinant Baculoviruses Directing Rapid Expression of Passenger Genes in Infected Insects — Russell Johnson, Roy G. Meidinger, and Kostas Iatrou 815

Role of Exonuclease in the Specificity of Bacteriophage T7 DNA Packaging — Marjatta Son and Philip Serwer 824

Short Communications

***In Vitro* Accurate Transcription from the Cap Site of Bovine Leukemia Virus (BLV) Dependent on the BLV-Infected Cell Nuclear Lysate** — Akiko Shoji-Tanaka, Iyoko Katoh, Yoshiyuki Yoshinaka, and Yoji Ikawa 834

Presentation of Hepatitis B Virus $preS_2$ Epitope on Bluetongue Virus Core-like Particles — A. S. Belyaev and Polly Roy 840

Identification of Heat Shock Protein 70 in the Rabies Virion — Junji Sagara and Akihiko Kawai 845

Biologically Selected Recombinants between Feline Leukemia Virus (FeLV) Subgroup A and an Endogenous FeLV Element — Rebecca Lynn Sheets, Rakesh Pandey, Vaclav Klement, Chris K. Grant, and Pradip Roy-Burman 849

Interferon-Inducible Gene Expression in Chimpanzee Liver Infected with Hepatitis C Virus — Tamami Kato, Mariko Esumi, Susumu Yamashita, Kenji Abe, and Toshio Shikata 856

Synergism between Bovine Papillomavirus Type 4 and the Flavonoid Quercetin in Cell Transformation *in Vitro* — William D. Pennie and M. Saveria Campo 861

5′ Avian Leukosis Virus Sequences and Osteopetrotic Potential — H. L. Robinson, R. G. Foster, B. P. Blais, S. S. Reinsch, M. Newstein, and P. R. Shank ... 866

Changing the Spacing between Metal-Binding Motifs Decreases Stability and Transforming Activity of the Human Papillomavirus Type 18 E7 Oncoprotein — Sumie Watanabe, Hironori Sato, Akemi Furuno, and Kunito Yoshiike 872

The Influence of N-Linked Glycosylation on the Antigenicity and Immunogenicity of Rubella Virus E1 Glycoprotein — Zhiyong Qiu, Frank Tufaro, and Shirley Gillam 876

Cloning and Nucleotide Sequence of the 5′ Part of v-*myb* cDNA — Petr Bartůněk, Zbyněk Kozmik, and Michal Dvořák 882

Effects of Site-Directed Mutagenesis on the Presumed Catalytic Triad and Substrate-Binding Pocket of Grapevine Fanleaf Nepovirus 24-kDa Proteinase — Rogério Margis and Lothaire Pinck 884

The BPV-1 E5 Oncoprotein Expressed in *Schizosaccharomyces pombe* Exhibits Normal Biochemical Properties and Binds to the Endogenous 16-kDa Component of the Vacuolar Proton-ATPase — David J. Goldstein, Reiko Toyama, Ravi Dhar, and Richard Schlegel 889

Genetic Drift of Hepatitis C Virus during an 8.2-Year Infection in a Chimpanzee: Variability and Stability — Hiroaki Okamoto, Maki Kojima, Shun-Ichi Okada, Hiroshi Yoshizawa, Hisao Iizuka, Takeshi Tanaka, Elizabeth E. Muchmore, David A. Peterson, Yukio Ito, and Shunji Mishiro 894

Announcement 900

Author Index for Volume 190 901

Subject Index for Volume 190 904